No. 8100048

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Coker's Pedigreed Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOBACCO

'Coker 51'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 18th *day of* February *in the year of our Lord one thousand nine hundred and* eighty-two.

PLANT VARIETY PROTECTION OFFICE · DEPARTMENT OF AGRICULTURE

*Attest:*

*Commissioner*
*Plant Variety Protection Office*
*Grain Division*

John R Block

Exhibit A Origin and Breeding History of Coker 51

| Year | |
|---|---|
| 1961-65 | Cross of Beltsville 61-10 and a selection from a cross between Coker 139 and Hicks that was released two years later as Coker 319. (Beltsville 61-10 x Coker 319). The above cross was reselected for five generations. |
| 1965-68 | Coker 258 was crossed with a selection from the $F_5$ progeny row of Beltsville 61-10 x Coker 319 and reselected for five generations. |
| 1968-70 | A selection from the $F_5$ progeny row of Coker 258 (Beltsville 61-10 x Coker 319) was crossed with 175 LaPrade and subsequently reselected for four generations. |
| 1964-70 | A selection from an $F_1$ hybrid between Coker 319 and Va. 45 was crossed with an $F_7$ selection of Coker 323 (a breeding line) and reselected for seven generations. |
| 1970 | $F_7$ selections of (Coker 319 x Va. 45) Coker 323 (selection #70-107GH) was crossed with $F_4$ selection (Coker 258(Beltsville 61-10 x Coker 319) x 175 LaPrade (selection #70-119GH) |
| 1971 | $F_1$ plants grown in summer breeding nurseries and selection #71-149-1MM was advanced to 1971 Florida winter breeding nursery. |
| 1971 | $F_2$ progeny row selected in winter breeding nursery and selection #71-88-3 Fla was advanced to 1972 tests. |
| 1972 | $F_3$ progeny row reselected in summer breeding nurseries and selection #72-132-2MM was advanced to 1973 tests. |
| 1973 | $F_4$ progeny row reselected in summer breeding nurseries and selection #73-131-4MM advanced to 1974 tests. |
| 1974 | $F_5$ progeny row reselected in summer breeding nurseries and selection #74-147-2E was advanced to 1975 tests. |
| 1975 | $F_6$ progeny row reselected in summer breeding nurseries and selection #75-144-2E was advanced to the 1976 tests. |

1976 — $F_7$ progeny row was reselected in summer breeding nurseries and the seed bulked and advanced to the 1977 tests as Coker 76-51MM.

1977 — Coker 76-51MM $F_8$ tested in Coker's Pedigreed Seed Company Advanced Strains-Variety Test and Regional Small Plot Tests.

1978 — Coker 76-51MM $F_9$ tested in Coker's Pedigreed Seed Company Advanced Stains-Variety Tests and breeding nurseries.

1979 — Coker 76-51MM $F_{10}$ tested in Coker's Pedigreed Seed Company Advanced Strains-Variety Tests and Regional Farm Tests and it was determined that Coker 76-51MM was stable and met the minimum standards as established by the Variety Evaluation Committee of the Tobacco Workers Conference and therefore eligible for varietial status. The variety was named Coker 51.

1980 — Seed increases were made from seed of selected $F_{10}$ progeny row of Coker 51 and resulting seed harvested.

Throughout the development of Coker 51 each generation of each progeny row was grown from seed of an individual plant selection.

The breeding nurseries in which this variety was produced are severely infested with either black shank, bacterial wilt, and/or root knot nematodes. Leaves were harvested, identified, cured, graded, and chemically analyzed from every progeny row throughout the development period.

Variants: No variants have been observed throughout the regional testing and increase period.

Stability: Coker 51 has remained phenotypically stable throughout its advanced testing and increase period. Progeny rows from the variety are of the same phenotype, maturity, height, yield, and quality, and exhibit the same disease resistance reactions.

# INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and ~~$250.00~~ 500 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give (1), the genealogy, including public and commerical varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4), evidence of stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.

14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)

FORM GR-470
(1-76)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
PLANT VARIETY PROTECTION OFFICE
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

FORM APPROVED
OMB NO. 40-R3712

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

| 1a. TEMPORARY DESIGNATION OF VARIETY | 1b. VARIETY NAME | FOR OFFICIAL USE ONLY | |
|---|---|---|---|
| | Coker 51 | PV NUMBER 8100048 | |
| 2. KIND NAME | 3. GENUS AND SPECIES NAME | FILING DATE | TIME A.M. P.M. |
| Flue-Cured Tobacco | Nicotiana tabacum | 2/4/81 | 12:00 (P.M.) |
| 4. FAMILY NAME (BOTANICAL) | 5. DATE OF DETERMINATION | FEE RECEIVED | DATE |
| Solanaceae | Feb. 1, 1980 | $ 500.00<br>$ 250.00<br>$ | 2/4/81<br>12/2/81 |

| 6. NAME OF APPLICANT(S) | 7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*) | 8. TELEPHONE AREA CODE AND NUMBER |
|---|---|---|
| Coker's Pedigreed Seed Company | P.O. Box 340<br>Hartsville, South Carolina 29550 | 803-332-8151 |

| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*) | 10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION | 11. DATE OF INCORPORATION |
|---|---|---|
| Corporation | South Carolina | June 12, 1918 |

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Dr. Carol R. Miller
Coker's Pedigreed Seed Co.
P.O. Box 340
Hartsville, S. C. 29550

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [ ] 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED 12/29/81 [X] CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal? [X] YES [ ] NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

Nov 18, 1980 — (DATE)

Carol R. Miller — (SIGNATURE OF APPLICANT)

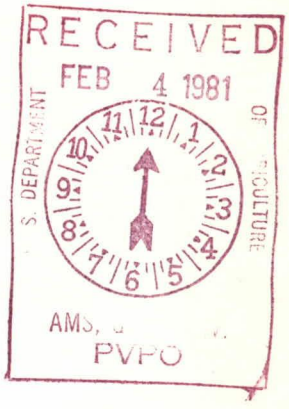
(DATE)

(SIGNATURE OF APPLICANT)

Revised Jan. 14, 1981

Exhibit B Novelty Statement

Summary Novelty Statement: Coker 51 most closely resembles Coker 86. Coker 51 and Coker 86 are the only mosaic resistant varieties that have high resistance to black shank, bacterial wilt, and root-knot nematodes. Coker 51 differs from Coker 86 in that Coker 51 exhibits a smooth leaf surface similar to Coker 347 whereas the leaf surface of Coker 86 is puckered similar to Coker 48.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AMS,
PVPO

8100048

13. DISEASE (0 = Not tested, 1 = Susceptible, 2 = Resistant)

| | | | |
|---|---|---|---|
| 1 | POTATO VIRUS Y | 2 | TMV |
| 0 | NEMATODE ROOT ROT (LESION, SPECIES)_____ | 2 | ROOT KNOT NEMATODE |
| 1 | TOBACCO ETCH VIRUS | 0 | OZONE AIR POLLUTION |
| | OTHER (Specify) _____ | | OTHER (Specify) _____ |

NOTE: Under 16 "Comments", give comparative reaction with a standard variety appropriate for each disease tested and indicate if disease reaction of the variety exceeds, equals or is less than that of the standard).

14. LEAF CONSTITUENTS (Give data for described and standard variety):

| VARIETY | NICOTINE % | NOR NICOTINE % | TOTAL NITROGEN % | REDUCING SUGARS % (FLUE-CURED) |
|---|---|---|---|---|
| SUBMITTED | 3.41 | 2.9 | 2.49 | 10.20 |
| STANDARD | 3.52 | 2.9 | 2.54 | 11.90 |
| NAME OF STANDARD VARIETY | NC 2326 | NC 2326 | NC 2326 | NC 2326 |

15. VARIETIES MOST CLOSELY RESEMBLING THAT DESCRIBED FOR THE CHARACTERS GIVEN:

| CHARACTER | VARIETY | CHARACTER | VARIETY |
|---|---|---|---|
| MATURITY | Coker 48 | LEAF TIP SHAPE | NC 13 |
| LEAF LENGTH | NC 13 | VENATION PATTERN | Coker 347 |
| LEAF WIDTH | NC 13 | LEAF SURFACE | Coker 347 |
| LEAF CARRIAGE | NC 13 | LEAF MARGIN | NC 13 |
| PETIOLE ANGLE | Coker 254 | LEAF COLOR | Coker 347 |
| LEAF SHAPE | NC 13 | PLANT FORM | NC 13 |

16. COMMENTS (For increasing accuracy of description)

Jim Brown

Research Report No. 77
December, 1980

Do not copy this page

## Measured Crop Performance

# TOBACCO
# 1980

JOHN C. RICE, Professor
ROGER BLACK, Research Assistant
GLENN TART, Tobacco Marketing Specialist

DEPARTMENT OF CROP SCIENCE

NORTH CAROLINA STATE UNIVERSITY
AT RALEIGH


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GROUPING: STANDARD VARIETIES

01 = NC 95 | 02 = NC 2326 | 03 = COKER 319 | 04 = HICKS | 05 = SPEIGHT G-28 | 06 = SC 58
07 = Ky 151 | 08 = BURLEY 21 | 09 = BURLEY 49 | 10 = Ky 10 | 11 = MARYLAND 609 | 12 = Ky 165
13 = Pennbel 69 | 14 = HAVANA 503 | 15 = FLORIDA 17 | 16 = OTHER Clemson Pee Dee 4

**7. LEAF NUMBER (Select code from Standard Varieties listed above)**

TOPPED NORMAL:

[2][2][7] NO. PER PLANT

[ ][ ][ ] NO. OF LEAVES > 40.6 CM [ ][ ][ ] CM HEIGHT OF LAST LEAF > 40.6 CM

NOT TOPPED:

[ ][ ][ ] NO. OF LEAVES OR NODES TO "CROWFOOD" FROM 1ST HARVESTABLE LEAF

**8. INTERNODES (Topped) (Select code from Standard Varieties listed above)**

[4][8] MM LENGTH [0][8] MM SHORTER THAN..... [0][2] [ ][ ] MM LONGER THAN..... [ ][ ]

**9. LEAF CHARACTERISTICS:**

PETIOLE ANGLE:

[4][8] DEGREES [3] GROUPING: 1 = < 35° 2 = 35–45° 3 = 46–65° 4 = > 65°

LEAF CARRIAGE

[2] 1 = ARCHED (DROOPING) 2 = HORIZONTAL 3 = UPRIGHT

LEAF COLOR (At topping or when 50% of plants with 1 flower)

[2] 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = YELLOW–GREEN 5 = YELLOW

LEAF SHAPE:

[3] 1 = BROADER THAN LONG 2 = LENGTH EQUALS WIDTH 3 = LONGER THAN BROAD

[1] 1 = BROADEST AT MIDDLE 2 = BELOW MIDDLE 3 = ABOVE MIDDLE

TIP SHAPE

[2] 1 = ACUTE 2 = ACUMINATE 3 = OBTUSE

VENATION PATTERN:

[2] 1 = SQUARE 2 = ANGULAR

LEAF SURFACE

[1] 1 = SMOOTH (HICKS) 2 = PUCKERED (NC 95)

LEAF MARGIN

[2] 1 = WAVY 2 = NOT WAVY [2] 1 = RECURVED 2 = NOT RECURVED

**10. FLOWERS:**

[2] COLOR: 1 = WHITE 2 = PINK 3 = RED 4 = OTHER _____

FLOWER HEAD HABIT:

[2] 1 = CLOSED (NC 95) 2 = INTERMEDIATE 3 = OPEN (HICKS)

**11. PLANT FORM**

[3] 1 = PYRAMIDAL 2 = COLUMNAR 3 = OTHER (Specify) Intermediate

**12. GROUND SUCKERS:**

[ ][ ] NO. PER PLANT

**13. DISEASE (0 = Not tested, 1 = Susceptible, 2 = Resistant)**

[2] BLACK SHANK (RACES) Common

[0] BLACK ROOT ROT

[1] BLUE MOLD

[0] WILDFIRE (SPECIES) _____

[0] BLACKFIRE

[2] FUSARIUM WILT (NICOTIANA)

[0] FUSARIUM WILT (BATATAS)

[0] FROGEYE

[1] BROWN SPOT

[2] BACTERIAL WILT

DEC 22 1980

FORM GR-470-31
(12-16-74)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

# OBJECTIVE DESCRIPTION OF VARIETY
## Tobacco (Nicotiana tabacum)

NAME OF APPLICANT(S)
Coker's Pedigreed Seed Company

ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)
P.O. Box 340
Hartsville, South Carolina 29550

VARIETY NAME OR TEMPORARY DESIGNATION
Coker 51

FOR OFFICIAL USE ONLY
PVPO NUMBER
8100048

Place the appropriate number that describes the varietal character in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9] when number is either 99 or less or 9 or less.

**1. CLASS:**

[1] 1 = FLUE-CURED 2 = FIRE-CURED 3 = AIR-CURED 4 = CIGAR FILLER 5 = CIGAR BINDER 6 = CIGAR WRAPPER
7 = MISCELLANEOUS-DOMESTIC 8 = FOREIGN-CIGAR LEAF 9 = FOREIGN-NON-CIGAR LEAF

[ ] AIR-CURED: 1 = BURLEY 2 = MARYLAND 3 = DARK AIR-CURED

**STANDARD VARIETIES**

01 = NC 95 02 = NC 2326 03 = COKER 319 04 = HICKS 05 = SPEIGHT G-28 06 = SC 58
07 = Ky 151 08 = BURLEY 21 09 = BURLEY 49 10 = Ky 10 11 = MARYLAND 609 12 = Ky 165
13 = Pennbel 69 14 = HAVANA 503 15 = FLORIDA 17 16 = OTHER Clemson Pee Dee 4

**2. MATURITY (Transplant to 50% plants 1 Fl.) (Select code from Standard Varieties listed above)**

[0][7][0] NO. OF DAYS
[ ][ ] DAYS EARLIER THAN . . . [ ][ ]
[0][6] DAYS LATER THAN . . . . . [0][2]

**3. SEEDING TO TRANSPLANTING (Select code from Standard Varieties listed above)**

[ ][ ] NO. OF DAYS
[ ][ ] DAYS EARLIER THAN . . . [ ][ ]
[ ][ ] DAYS LATER THAN . . . . . [ ][ ]

**4. PLANT HEIGHT (After topping) (Select code from Standard Varieties listed above)**

[1][0][8] CM TALL
[ ][ ] CM SHORTER THAN . . . . . [ ][ ]
[0][1] CM TALLER THAN . . . . . [0][2]

**5. LEAF SIZE (At leaf maturity) (Select code from Standard Varieties listed above)**

LENGTH

| | 5TH LEAF | 10TH LEAF | 15TH LEAF |
|---|---|---|---|
| | [5][6▲6] CM | [5][8▲2] CM | [ ][ ▲ ] CM |
| SHORTER THAN | [3▲3] CM [0][2] | [3▲3] CM [0][2] | [ ▲ ] CM [ ][ ] |
| LONGER THAN | [3][5] CM [0][1] | [4▲0] CM [0][1] | [ ▲ ] CM [ ][ ] |

WIDTH

| | 5TH LEAF | 10TH LEAF | 15TH LEAF |
|---|---|---|---|
| | [2][5▲9] CM | [2][8▲4] CM | [ ][ ▲ ] CM |
| NARROWER THAN | [1▲3] CM [1][6] | [0▲4] CM [0][1] | [ ▲ ] CM [ ][ ] |
| WIDER THAN | [1▲8] CM [0][2] | [0▲8] CM [0][2] | [ ▲ ] CM [ ][ ] |

**6. LEAF YIELD (Select code from Standard Varieties listed above)**

[3][0][4][3] KG/HA [0][2] % LESS THAN . . . . . [1][6] [1][0] % MORE THAN . . . . . [0][3]

Table 5. Summary information on disease resistance - 1980.

| Varieties or Lines | Black Shank[1/] | Bacterial Wilt[1/] | Root Knot[2/] | Mosaic[2/] |
|---|---|---|---|---|
| **Commercially Available Varieties** | | | | |
| NC 2326 | 53 | 55 | | |
| NC 95 | 49 | 14 | Res. | |
| Coker 48 | 29 | 16 | | |
| Coker 86 | 23 | 12 | Res. | Res. |
| Coker 298 | 43 | 26 | | |
| Coker 319 | 41 | 67 | | |
| Coker 347 | 43 | 10 | Res. | |
| Coker 411 | 32 | 32 | | |
| Coker 51 | 29 | 14 | Res. | Res. |
| McNair 373 | 35 | 32 | Res. | |
| McNair 944 | 29 | 44 | | |
| McNair 3199 | 17 | 8 | Res. | |
| NC 82 | 22 | 21 | | |
| NC 89 | 44 | 35 | Res. | |
| NC 628 | 35 | 17 | Res. | Res. |
| Clemson PD4 | 44 | 64 | | |
| Rogers 768 | 24 | 8 | Seg. | Res. |
| Speight G-28 | 24 | 24 | Res. | |
| Speight G-58 | 36 | 29 | Res. | |
| Speight G-70 | 14 | 46 | Res. | |
| Speight G-140 | 40 | 22 | | |
| Va. 115 | 33 | 24 | | |
| **Advanced Breeding Lines** | | | | |
| Coker 78-209MM | 43 | 9 | Res. | Res. |
| McNair 3172 | 45 | 32 | Res. | |
| NC TG-23 | 29 | 8 | Res. | |
| NC TG-24 | 54 | 31 | | |
| NC TG-25 | 59 | 42 | | |
| NC 7556 | 64 | 17 | Res. | Res. |
| NC 7567 | 58 | 25 | Res. | Seg. |
| NC 9451 | 56 | 12 | Res. | Res. |
| NC 9477 | 54 | 24 | Res. | Res. |
| NC 9538 | 44 | 17 | Res. | Res. |
| NC 9564 | 48 | 16 | Res. | |
| NC 67 USDA | 31 | 26 | | |
| NC 69 USDA | 60 | 14 | Res. | |
| NC 86 USDA | 60 | 16 | Res. | |
| NC 9120 USDA | 44 | 7 | Seg. | |
| NC 9122 USDA | 40 | 38 | | |
| NC 9140 USDA | 65 | 21 | Res. | |
| NC 9150 USDA | 46 | 14 | Res. | |
| Rogers 78-23MR | 32 | 13 | Res. | Res. |
| Speight G-72 | 46 | 16 | Res. | |
| Speight G-83 | 53 | 7 | Res. | |
| Speight G-84 | 48 | 14 | Res. | |
| Speight G-85 | 34 | 26 | Res. | |
| Speight G-86M | 47 | 21 | Res. | Res. |
| Speight G-87M | 60 | 33 | Res. | |
| Speight G-88M | 46 | 22 | Res. | Res. |
| Va. 70 | 37 | 30 | | |
| Va. 82 | 33 | 17 | | |

[1/] This is a disease index which reflects both the percentage of plants diseased and the time during the growing season the symptoms appeared. The higher the number, the lower the resistance. Example: Black Shank - McNair 944, high resistance; Coker 319, low resistance. Bacterial Wilt - Coker 48, high resistance; Clemson PD4, low resistance.

[2/] Resistant or segregating for resistance.


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Table 4. RESISTANT VARIETIES[1/]

| Variety | Level of Resistance[2/] Black Shank | Granville Wilt | Tolerance[2/] Level Brown Spot | Root-Knot[3/] | Mosaic |
|---|---|---|---|---|---|
| Coker 51 | High | High | - | Res. | Res. |
| McNair 3199 | High | High | - | Res. | Susc. |
| Clemson PD4 | Low | Low | - | Susc. | Susc. |
| Coker 48 | High | High | Sen. | Susc. | Susc. |
| Coker 86 * | High | High | Mod.Tol. | Res. | Res. |
| Coker 258 * | High | High | Mod.Tol. | Res. | Susc. |
| Coker 298 | High | High | V.Sen. | Susc. | Susc. |
| McNair 944 | High | Low | V.Sen. | Susc. | Susc. |
| N.C. 13 * | High | Low | V.Sen. | Susc. | Susc. |
| N.C. 82 | High | Mod. | - | Susc. | Susc. |
| Speight G-28 | High | High | Tol. | Res. | Susc. |
| Speight G-52 * | High | Mod. | Mod.Tol. | Susc. | Susc. |
| Speight G-70 | High | Mod. | - | Res. | Susc. |
| Speight G-140 | High | Mod. | V.Sen. | Susc. | Susc. |
| Coker 254 * | Mod. | High | Sen. | Res. | Susc. |
| Coker 347 | Mod. | High | Sen. | Res. | Susc. |
| Coker 411 | Mod. | Low | V.Sen. | Susc. | Susc. |
| McNair 30 * | Mod. | Susc. | Sen. | Susc. | Susc. |
| McNair 373 | Mod. | High | - | Res. | Susc. |
| N.C. 628 | Mod. | High | - | Res. | Res. |
| N.C. 79 * | Mod. | Mod. | Mod.Tol. | Res. | Susc. |
| N.C. 88 * | Mod. | Mod. | Tol. | Res. | Susc. |
| N.C. 95 | Mod. | High | Tol. | Res. | Susc. |
| N.C. 98 * | Mod. | Mod. | Tol. | Res. | Susc. |
| N.C. 2326 | Mod. | Susc. | Mod.Tol. | Susc. | Susc. |
| S.C. 71 * | Mod. | Low | Sen. | Susc. | Res. |
| S.C. 72 * | Mod. | High | Sen. | Res. | Res. |
| Speight G-23 * | Mod. | High | Tol. | Res. | Susc. |
| Speight G-33 * | Mod. | Mod. | Tol. | Res. | Susc. |
| Speight G-41 * | Mod. | High | Tol. | Res. | Susc. |
| Speight G-58 | Mod. | Mod. | - | Res. | Susc. |
| Virginia 115 | Mod. | Low | Mod.Tol. | Susc. | Susc. |
| Coker 319 | Low | Low | Sen. | Susc. | Susc. |
| N.C. 89 | Low | Low | Tol. | Res. | Susc. |

1/ Terms Used: Tol. = Tolerant; Sen. = Sensitive; V.Sen. = Very Sensitive; Res. = Resistant; Susc. = Susceptible; Mod. = Moderate.

2/ Descriptive rating applies specifically to North Carolina and is based on regional information, performance in disease problem fields, and observations made in this state. Ratings based on data obtained in 1978, 1979 and 1980. Brown spot ratings based on information obtained in 1978.

3/ Resistance to *Meloidogyne incognita*, the most prevalent species of root-knot nematode occurring on flue-cured tobacco.

* These varieties were not evaluated in 1980, the resistance rating shown is based on information obtained in previous years.


RECEIVED
OCT 13 1981
U.S. DEPARTMENT OF AGRICULTURE
AMS, LPGBS DIV.
PVPO

8100048

# ASSIGNMENT OF PLANT VARIETY PROTECTION CERTIFICATES

WHEREAS, COKER'S PEDIGREED SEED COMPANY, a South Carolina corporation ("Coker's"), having its offices at 900 Darlington Highway, Hartsville, South Carolina 29550, has adopted and used and is the sole and exclusive owner of certain United States Plant Variety Protection Certificates and similar rights under laws of countries other than the United States as listed in Exhibit A hereto:

WHEREAS, COKER'S PEDIGREED SEED CO. and NORTHRUP KING CO., a Delaware corporation ("NK"), have entered into an Asset Purchase Agreement, dated July 20, 1988, providing for the purchase and sale of substantially all of the assets and business of Coker's and the assumption of certain of Coker's liabilities and obligations by NK; and

WHEREAS, NK desires to acquire the right, title and interest in, to and under the Plant Variety Protection Certificates listed on Exhibit A hereto and the pending applications hereto (collectively, the "Plant Variety Protection Certificates").

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, Coker's hereby sells, assigns, transfers and sets over to NK the Plant Variety Protection Certificates. Coker's further agrees, at no cost to it, to execute and deliver to NK, upon the request of NK, any further instrument of assignment that may be necessary to effectuate the transfer of each Plant Variety Protection Certificate.

IN WITNESS WHEREOF, Coker's has caused this instrument to be executed by its duly authorized representative as of the 20th day of July, 1988.

COKER'S PEDIGREED SEED COMPANY

By: E. Joe Dahmer
E. Joe Dahmer
President

STATE OF MINNESOTA )
) ss:
COUNTY OF HENNEPIN )

On this 20th day of July, 1988, before me, a Notary Public in and for the County aforesaid, the undersigned officer, E. Joe Dahmer, personally appeared and acknowledged himself to be the President of Coker's Pedigreed Seed Co., and that he executed the foregoing instrument for the purposes therein.

WITNESS my hand and seal this 20th day of July, 1988.

TIMOTHY M. BANGASSER
NOTARY PUBLIC – MINNESOTA
HENNEPIN COUNTY
My Commission Expires May 22 1992

Timothy M Bangasser
Notary Public

## Winter Oat Varieties

| Variety Name | U.S. Plant Variety Certificate Number | Issue Date | Term (Yrs.) |
|---|---|---|---|
| Coker 227 | 7500007 | Oct. 20, 1977 | 17 |
| Coker 716 | 7900003 | Dec. 28, 1978 | 17 |
| Coker 820 | 8400059 | June 30, 1987 | 18 |
| Coker 234 | 7500008 | Oct. 26, 1977 | 17 |
| Four Twenty Two | 7700085 | Apr. 12, 1979 | 17 |
| Big Mac | 8200121 | Aug. 19, 1982 | 18 |
| Mesquite | 8200122 | Aug. 19, 1982 | 18 |

## Tobacco Varieties

| | | | |
|---|---|---|---|
| Coker 347 | 72022 | Oct. 27, 1976 | 17 |
| Coker 411 | 72023 | Oct. 27, 1976 | 17 |
| Coker 86 | 7600004 | Oct. 27, 1976 | 17 |
| Coker 48 | 7800008 | Sept. 20, 1978 | 17 |
| Coker 51 | 8100048 | Feb. 18, 1982 | 18 |
| Coker 176 | 8300056 | Sept. 29, 1983 | 18 |
| Coker 206 | 8500040 | Apr. 30, 1986 | 18 |
| Coker 371 Gold | 8700049 | Sept. 30, 1987 | 18 |

## Cotton Varieties

| | | | |
|---|---|---|---|
| Coker 310 | 7100021 | Jan. 18, 1974 | 17 |
| Coker 304 | 7700024 | Dec. 21, 1978 | 17 |
| Coker 420 | 7900087 | Jan. 29, 1980 | 17 |
| Coker 315 | 8000087 | Dec. 18, 1980 | 17 |

*State of Delaware*

# *Office of the Secretary of State*

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "NORTHRUP KING CO.", CHANGING ITS NAME FROM "NORTHRUP KING CO." TO "NOVARTIS SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF DECEMBER, A.D. 1996, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

GREAT SEAL OF THE STATE OF DELAWARE
LIBERTY AND INDEPENDENCE
1793 • 1847 • 1907

*Edward J. Freel, Secretary of State*

0829320 8100

960389892

AUTHENTICATION: 8267947

DATE: 12-31-96

CERTIFICATE OF AMENDMENT OF CERTIFICATE OF INCORPORATION

OF

NORTHRUP KING CO.

It is certified that:

1. The name of the corporation (hereinafter called the "Corporation") is Northrup King Co.

2. The Certificate of Incorporation of the Corporation is hereby amended by striking out Section 1 thereof and by substituting in lieu of said Section the following new Section.

1. The name of the Corporation is Novartis Seeds, Inc.

3. The amendment of the certificate of incorporation herein certified has been duly adopted and written consent has been given in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

4. The effective date of the amendment herein certified shall be January 1,1997.

Signed on December 27, 1996.

Edward C. Resler
Vice President & Secretary

**ProfiGen Inc.** 800 HARRISON STREET, NASHVILLE, TENNESSEE 37203
VOICE: (615) 880-4699
FAX: (615) 880-4697

June 17, 1999

Dr. Thomas A. Salt
Senior Examiner
Plant Variety Protection Office
10301 Baltimore Blvd.
Beltsville, MD 20705

Re: PVP tobacco

Dear Dr. Salt:

Enclosed you will find a check in the amount of $195 for the following PVPs we would like to order. We understand the fee is $1.00/page.

| PV# | Name | Issue Date | Expiration Date | Pages |
|---|---|---|---|---|
| 8100048 | Coker 51 | 02/18/82 | 02/18/00 | 18 |
| 8200001 | K399 | 07/15/82 | 07/15/00 | 11 |
| 8300056 | Coker 176 | 09/29/83 | 09/29/01 | 14 |
| 8300070 | K326 | 03/26/84 | 03/26/02 | 11 |
| 8500025 | Speight –G-80 | 04/30/86 | 04/30/04 | 08 |
| 8500040 | Coker 206 | 04/30/86 | 04/30/04 | 11 |
| 8700040 | K394 | 08/31/87 | 08/31/05 | 11 |
| 8700049 | Coker 371 Gold | 09/30/87 | 09/30/05 | 19 |
| 8700057 | Speight G-108 | 08/31/87 | 08/31/05 | 13 |
| 8700120 | K317 | 08/31/87 | 08/31/05 | 11 |
| 8800070 | K340 | 06/30/88 | 06/30/06 | 13 |
| 8900079 | K358 | 10/31/90 | 10/31/08 | 14 |
| 9100160 | K346 | 10/31/94 | 10/31/12 | 14 |
| 9200045 | Speight G-117 | 05/31/94 | 05/31/12 | 14 |
| 9400102 | K730 | 09/30/94 | 09/30/12 | 13 |

Thank you very much for your attention to this matter.

Best regards,

James A. Strickland, Ph.D.
Director of Intellectual Property Management
and Regulatory Affairs

JAS/bk
Enclosure

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND — NOT A WHITE BACKGROUND

Profigen Inc. 100 WEST PUTNAM AVENUE GREENWICH, CONNECTICUT 06830
Fleet Bank of North Carolina, N.A. Asheville, N.C. 28801

002484 66-763/531

| DATE | AMOUNT |
|---|---|
| 06/25/99 | $*******195.00 |

PAY TO THE ORDER OF
TREASURER OF THE UNITED STATES
C/O DR. THOMAS A SALT
PLANT VARIETY PROTECTION OFFICE
10301 BALTIMORE BLVD

Robert J. D'Alessandro
AUTHORIZED SIGNATURE
Debra A. Baker
AUTHORIZED SIGNATURE

NOT VALID AFTER 90 DAYS